

Notice of Allowability

Application No.

09/988,809

Examiner

Myriam Pierre

Applicant(s)

GRIFFIN ET AL.

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-45.
3. ☒ The drawings filed on 20 November 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>09/03/2004</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Authorization for this examiner's amendment was given in a telephone interview with applicant's representative John F. Hayden on 01/12/05.

The application has been amended as follows:

In the Specification

1. After "voiced strength" on page 6, line 29, insert --(distribution of voiced speech power over frequency and time)--.

After "unvoiced strength" on page 6, lines 29-30, insert --(distribution of unvoiced speech power over frequency and time)--.

After "pulsed signal strength" on page 6, line 30, insert --(distribution of the power of the pulsed component of the speech signal over frequency and time)--.

Moreover, change "signals" on page 6, line 24 insert --audio signals--.

In the Claims

In claims 1 and 41, lines 1 & 3; and claim 26, line 1, change "signal" to --speech signal--.

In claim 21, line 7 and claim 22, line 4, change "voice strength" to --voiced strength--.

In claim 7, line 1 and claim 10, line 2, change "pulse signal" to --pulsed signal--.

In claims 8, 19 and 33, lines 1-2, change "transform" to --frequency domain transform--.

In claims 18 and 20, line 1, change "signal" to --speech signal--.

DETAILED ACTION

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Allowable Subject Matter

3. Claims 1-45 are allowed with an Examiner's Amendment over the prior art of record. The following is an examiner's statement of reasons for allowance:

As to claims 1, 18, 20, 21, 22, 24, and 26

Aoyagi (5,752,223) teaches resolving a speech signal into voiced, unvoiced, and pulsed signal components in the time domain, using adaptive, stochastic, and pulsed codebooks, respectively.

But Aoyagi does not teach resolving a speech signal into voiced, unvoiced and pulsed signal components in the frequency domain over time.

Griffin (5,754,974) teaches a MBE coder resolving a speech signal into voiced and unvoiced components in the frequency domain over time, but does not teach obtaining a pulsed signal component in the frequency domain over time.

Neither Aoyagi nor Griffin singularly or in combination teach nor fairly suggest the evaluation of the distribution of the power of a pulsed component of a speech signal in the frequency domain over time (pulse strength). While resolution of a speech signal into voiced and unvoiced signal components in the frequency domain over time is taught by Griffin, the pulse strength, as defined, is not taught nor is it obvious over the prior art.

As for claim 41,

Mermelstein (6,345,255) teaches an error minimization processor for resolving a speech signal into voiced, unvoiced, and pulsed components in the time domain, but his error criterion does not have reduced sensitivity to time shifts.

So, Mermelstein does not teach nor fairly suggest an error criterion having reduced sensitivity to time shifts to determine pulse (pulse strength) parameters, and neither does Aoyagi nor Griffin.

The dependent claims 2-17, 19, 23, 25, 27-40, and 42-45 are allowed because they further limit the independent claims or their parent claims.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The following art made of record and not relied upon is considered pertinent to applicant's disclosure: Sasaki (6,377,915), Blanton et al. (5,113,449), Fujimoto (5,864,797), Tzeng (5,293,449), McCree (6,463,406), Yu (6,424,941), Ozawa (5,633,980), Kaja (5,659,664), Veldhuis (6,044,345), and Hardwick et al. (5,195,166), Gottesman (Dispersion Phase Vector Quantization for Enhancement of Waveform Interpolative Coder), Plumpe et al. (Modeling of the Glottal Flow Derivative Waveform with Application to Speaker Identification), Chang-Joong et al. (On a Low bit Rate Speech Coder Using Multi-Level Amplitude Algebraic Method), and Quatieri T., Jr. et al. (Iterative techniques for minimum phase signal reconstruction from phase or magnitude).

Sasaki teaches speech coding and encoding using MELP system without transmitting additional information bits, the frequency bands' voicing information.

Blanton et al. teach obtaining a modified synthesized speech by altering the vocal track model.

Fujimoto teaches providing a speech coder using linear predictive analysis. The speech coder represents speech that is not sufficiently represented in the adaptive codebook in a periodic category of the input speech.

Tzeng teaches linear predictive codec scheme using a spectrum synthesizer, distortion analyzer, to determine the reconstructed signal.

McCree teaches pitch period determinations without multiple sampling periods.

Yu teaches compression of speech using adaptive codebooks, inputs having weighted error values, comparisons are performed between the stored adaptive values and with input values.

Ozawa teaches voice coding matching auditory sense that masks characteristics to signals supplied to the adaptive, excitation or multi-pulse codebooks.

Kaja teaches speech synthesis and determining speech parameters, storing parameters for each polyphone and defining the behavior of each parameter.

Veldhuis teaches speech LPC coding.

Hardwick et al. teach pitch estimation improvements in which sub-integer pitch values are estimated in creating the initial pitch estimate.

Gottesman teaches analysis-by-synthesizing vector quantization that works with other harmonic coders.

Plumpe et al. teach modeling glottal flow derivative waveform from speech, applying the model parameters to speaker identification.

Chang-Joong teaches algebraic codebook in which the size of the codebook increases without increased computation.


Quatieri T., Jr. et al. teach a minimum or maximum phase signal recovered from either the magnitude or phase of its Fourier transform.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Myriam Pierre whose telephone number is 703-605-1196. The examiner can normally be reached on Monday – Friday from 5:30 a.m. - 2:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on 703-306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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PRIMARY EXAMINER